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Journal of Acute Medicine 3 (2013) 152–154

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Case Report

Rectus sheath abscess caused by perforation of the small bowel by a fish bone

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Received 8 June 2013; accepted 8 October 2013

Available online 27 December 2013

Abstract

Gastrointestinal perforation resulting from ingestion of foreign bodies is uncommon, with a frequency of less than 1%. There is only one report in the literature of an abscess from a foreign body extending to the rectus sheath muscle in a patient who presented with chronic abdominal pain for several years. We report a 55-year-old man who presented to the emergency department with complaints of acute abdominal pain and an abdominal wall mass after severe coughing. A rectus sheath hematoma was impressed after a computed tomography study, but his symptoms were refractory to medical treatment. Ultrasonography revealed a foreign body within the mass. A fish bone with abscess formation was found during the surgery. Emergency physicians should maintain a high index of suspicion for an occult retained foreign body in any abscess and consider etiologies other than rectus sheath hematoma if the patient has signs of infection, leukocytosis, or progression of peritonitis. Abdominal ultrasonography may diagnose foreign bodies that are missed by computed tomography.

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Keywords: Bowel perforation; Fish bone; Rectus sheath abscess; Rectus sheath hematoma; Ultrasonography

1. Introduction

Most ingested foreign bodies pass through the gastrointestinal tract uneventfully, and perforations occur in less than 1% of all such cases.¹ Perforation may occur at any site in the gastrointestinal tract.² Fish bone penetration of the small bowel with migration to the rectus sheath muscle is extremely rare. We report a 55-year-old man who was diagnosed with a rectus sheath abscess caused by fish bone penetration that was successfully treated by surgery.

2. Case report

A 55-year-old man presented to the emergency department with progressive abdominal pain for 1 week after severe

coughing. There was no significant medical history. The patient reported he had not experienced vomiting, diarrhea, or trauma. His temperature was 35.2°C, pulse rate 93 beats/minute, respiratory rate 16 breaths/minute, and blood pressure 135/65 mmHg. The results of his physical examination were unremarkable except for a 4.5 cm × 5.5 cm tender mass in the left lower quadrant, without rebound tenderness or muscle rigidity. Laboratory tests showed a white blood cell count of 11,400/μL, aspartate aminotransferase of 17 U/L, creatine of 0.8 mg/dL, and C-reactive protein of 3.02 mg/dL. Computed tomography (CT) of the abdomen showed swelling of the left inner rectus abdominis muscle above a dirty fat-plane of peritoneum and regional omentum (Fig. 1). Because of the history of abdominal pain after severe coughing, a rectus sheath hematoma with local infection was impressed. A general surgeon and radiologist suggested medical treatment in the emergency department.

Intermittent fever with chills occurred 8 hours later, and empirical antibiotics were prescribed. Because of the progression of fever and abdominal pain, the CT scan was

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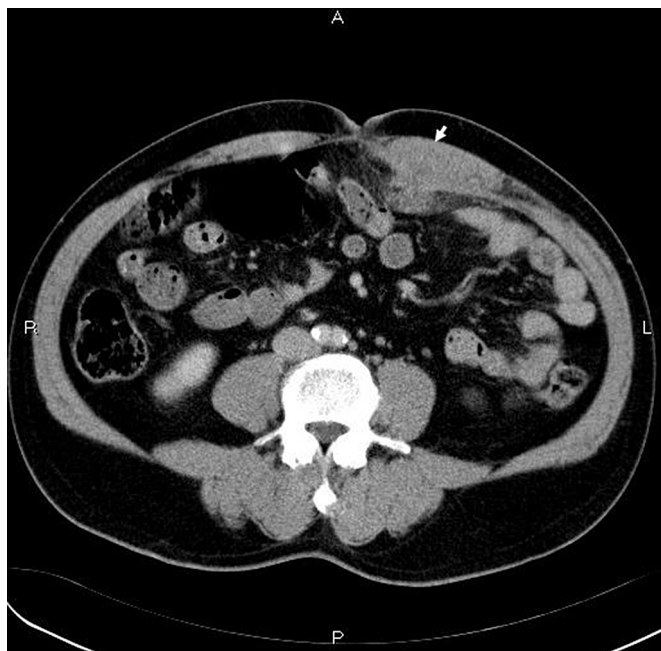


Fig. 1. Computed tomography shows swelling of the left inner rectus abdominis muscle (arrow) above a dirty fat plane of peritoneum and regional omentum.

repeated on the 3rd day, and it showed the enlargement of the abdominal wall lesion (Fig. 2). During ultrasonography to aspirate the abscess, a linear, hyperechoic lesion was found inside the mass (Fig. 3). An abscess from a perforation of the rectus sheath by a foreign body was highly suspected. The patient underwent an emergency surgery, and a 2-cm fish bone was found in the left rectus abdominis muscle with abscess



Fig. 2. Computed tomography 3 days later shows enlargement of the abdominal wall lesion with abscess formation (arrow).



Fig. 3. Abdominal ultrasonography shows a 2-cm linear, hyperechoic structure (arrow) with an acoustic shadow inside a heterogeneous mass.

formation (Fig. 4). An omental abscess with small bowel adhesions was also noted. The patient recovered well after surgery and recalled that he had eaten fish several days prior to when the abdominal pain began.

3. Discussion

Gastrointestinal perforation resulting from ingestion of foreign bodies is uncommon, with a frequency of less than 1%. The ileocecal, rectosigmoidal, and esophageal regions are most commonly affected.^{1,2} Fish bone penetration of the gastrointestinal tract extending into the rectus sheath is extremely rare. A review of the English literature revealed only one such case. Unlike the acute presentation of our patient, that patient had accidentally ingested a tailoring needle 17 years previously and presented with chronic abdominal pain.³

Rectus sheath hematoma was first impressed in our case because of the history of acute abdominal pain and formation of an abdominal wall mass after severe coughing. Rectus sheath hematoma results from a rupture of epigastric vessels and is frequently caused by trauma, severe coughing, pregnancy, abdominal surgery, or anticoagulants. It is usually a self-limited entity, and only supportive treatment is required.⁴ Accurate diagnosis of rectus sheath hematoma is based on a combination of medical history, physical examination, and radiological investigation.^{4,5} A rectus sheath abscess usually results from secondary infection of a rectus sheath hematoma,⁶ and may also be related to tuberculosis, Crohn's disease, or laparoscopic port site hematomas.³ Fever, leukocytosis, and progression of peritonitis are hints of abscess formation. Incision and drainage of the abscess may be required.

CT scans are reported to accurately diagnose 100% of rectus sheath hematomas and are also suggested when evaluating fish bone-induced abscess formation.⁴ However, Goh et al⁷ reported a sensitivity of 71.4% (5/7) for CT in the detection of intra-abdominal fish bones. The limitations of CT included lack of observer awareness and the scanning thickness. The region of perforation can be identified by some

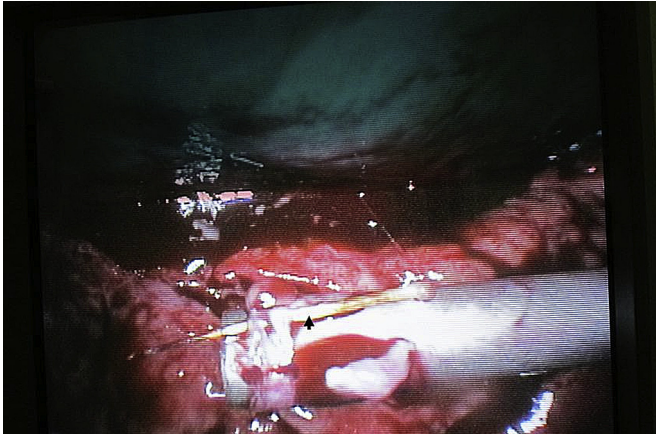


Fig. 4. A fish bone (arrow) is seen during laparoscopy.

nonspecific findings on CT scans, such as a thickened intestinal segment, localized pneumoperitoneum, regional fatty infiltration, or associated intestinal obstruction.⁸ CT did not identify the fish bone or differentiate the abscess from a hematoma in our case. Reports of the use of ultrasonography for fish bone perforation have been limited to some case reports.^{2,9} Ultrasonography showed its value in our case. It is not only time- and cost-efficient with no radiation safety issues⁵ but can also diagnose foreign bodies that are missed by CT.

In conclusion, a rectus sheath abscess secondary to fish bone perforation is a rare cause of acute abdomen. We initially misdiagnosed this case as a rectus sheath hematoma. Emergency physicians can minimize delay or misdiagnosis by: (1) maintaining a high index of suspicion for an occult retained foreign body in any abscess; (2) considering etiologies other

than rectus sheath hematoma if the patient has signs of infection, leukocytosis, or progression of peritonitis; and (3) using ultrasonography to diagnose foreign bodies that are missed by CT. Timely surgical consultation is needed in these patients.

Conflicts of interest

None.

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